C.D. Howe Institute
Backgrounder

No. 65, October 2002

Future Taxes on Pension Savings as a Government Asset

Jenna Robbins and
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The Backgrounder in Brief

The federal government has a little-noticed asset: the future stream of personal tax revenues that will be generated by withdrawals of funds accumulated in Registered Retirement Savings Plans and Registered Pension Plans. The authors estimate just how valuable that revenue source will be.

About the Authors

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Quotation with appropriate credit is permissible.

$5.00; ISBN 0-88806-567-1;
ISSN 1499-7983 (print); ISSN 1499-7991 (online)

Much has been made of the reduction of the ratio of Canada's federal debt to its gross domestic product (GDP) over the last ten years, and rightly so. But the Organisation for Economic Co-operation and Development (OECD) projections for the next 50 years (OECD 2001) suggest that maintaining the current patterns of government expenditure and taxation will lead to sharp increases in debt as a percentage of GDP for almost all developed countries, including Canada. Debt will increase as health care costs rise and an aging population has a smaller percentage of taxpaying workers and a larger percentage of older recipients of income support. Although some analysts, using projections and simulations, are decidedly more optimistic (see, for example, Brown 2002 and Mérette 2002), in the end the evolving government fiscal position will depend on the decisions of successive governments and hence on a broader societal debate.

Canadian policy discussion regarding the government's fiscal position conventionally emphasizes two numbers: the debt and the budget balance. While simulations and year-by-year projections are important tools for experts,[1] an approach that more directly supplements the standard debt and budget balance measures seems valuable. For example, the measure of the federal government debt (currently $550 billion) is sometimes supplemented by the $440 billion unfunded liability associated with the Canada Pension Plan (Canada, 2001b). And at the provincial level, Robson (2001) estimates an implicit unfunded liability of $530 billion associated with the health care system.[2]

We believe that the relative clarity of this supplement approach makes it a useful addition to public understanding of government liabilities. But the asset side needs similar calculations. Hence, we have estimated the present value to the federal government of the future stream of personal tax revenue that will be generated by payments from funds already accumulated within registered retirement savings plans (RRSPs) and registered pension plans (RPPs).[3] The advantage of our calculations is their simplicity and transparency; we estimate that

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We thank Deborah Fretz, Marcel Mérette, Jack Mintz and Bill Robson for help and comments. We are also grateful to Galen Countryman, Keith Horner and Harriet Jackson of the Department of Finance and Josée Begin, Kevin Kennedy and Ron Naylor of the Canada Customs and Revenue Agency for providing assistance, data, comments and other information. This research has been supported by the Research Program in the Social and Economic Dimensions of an Aging Population (SEDAP) as funded in part by the Social Sciences and Humanities Research Council of Canada.

1 The fundamental intergenerational equity tradeoff is between current and future (possibly unborn) generations. Most economists are wary of pronouncing on interpersonal welfare comparisons between "us" and "them," arguing that the choice is for society as a whole. Intergenerational accounts, as provided for Canada by Oreopoulos and Vaillancourt (1998), are intended to articulate the tradeoff, but this approach may be relatively complex for much policy discussion.

2 Robson's method takes the present value of the excess of forecast health care spending over what that spending would be if it remained at its current percentage of provincial GDP. Such a method will find an implicit asset associated with a program that has components that are projected to fall as a percentage of GDP.

3 The future revenue from these sources is explored in the simulations of Mérette (2002) and Brown (2002). King and Jackson (2000) discuss the issue of future withdrawals from tax-sheltered savings plans but do not fully incorporate it in their analysis. In its projections for a number of countries,...

for the federal and provincial governments combined, the present value of Canadians' RRSP and RPP assets is about $300 billion.

In addition, we argue that supplementing the debt and budget balance values in the manner we propose may be useful in considering public policies that might affect saving — such as higher RRSP and RPP contribution limits and enhanced incentives for low-income individuals to participate in RRSPs or RPPs — by making it clear that any loss in current tax revenue would be substantially offset by a future increase in tax revenue.

Accumulated Registered Assets

How much future revenue can the federal government expect from the personal taxation of funds now held in tax-deferred accounts? Let us first consider what we call registered savings plans (RSPs) — principally RRSPs but also registered retirement income funds (RRIFs), deferred profit sharing plans and locked-in retirement accounts — and then go on to RPPs.

According to Statistics Canada (2001b),[4] the 1999 holdings in RSPs were about $420 billion.

Consider just one of these dollars. If it grows at constant rate of return r and is withdrawn in year n, the personal income tax revenue to the federal government in year n will be $t\ (1 + r)^n$ where t is the applicable tax rate. When discounted back to the present at rate ρ that expression becomes

$$t\ (1 + r)^n\ /\ (1 + \rho)^n.$$

This simple calculation is the basis of our approach.

If we assume that the rate of return r equals the discount rate ρ, the factors involving n cancel and the expression becomes just t. That is, the present value of the tax stream to the government is simply $420 billion multiplied by the tax rate, regardless of the pattern of withdrawal over time. Using a rough value for the relevant federal personal income tax rate of t = 20 percent[5] implies that the present

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Note 3 - continued

...the OECD (2001) states that it made allowance for this type of tax revenue for Canada, Denmark, and the Netherlands.

4 Most of our data came from the Statistics Canada Website given in the reference list. We also consulted a purchased disk for Table 13F0044XDB, "Composition of Assets Held by Economic Families, Unattached Individuals and All Family Units by Age, Canada."

5 In support of the 20 percent figure, consider the following. Funds are withdrawn from RRSPs in three ways: direct withdrawal, RRSP annuity income, and RRIF income. We obtained a special data disaggregation from the Canada Customs and Revenue Agency (CCRA) for the years 1995–98 for each of these components by total income bracket and converted them by bracket to a taxable income basis, assuming $10,000 in deductions. Then, for each component we calculated an average applicable marginal tax rate. The component-weighted average for each of the four years (as well as for some early years for which we had partial data) was close to 21 percent. We subtracted one percentage point to allow for the recent reduction in federal personal income tax rates. A similar calculation yielded an almost identical estimate for payments from RPPs.

To assess bias in our first calculation, we redid it assuming deductions of zero and obtained a marginal tax rate for 1995–98 of 23 percent; when we assumed deductions were $20,000, we obtained a value of 18 percent. Our calculation has some upward bias because we assumed that every withdrawn dollar is a marginal dollar; large withdrawals may push individuals up a tax bracket and hence some of the withdrawn dollars would be taxed at a lower marginal rate...

value to the federal government of RSP accumulations as of 1999 was approximately 20 percent of $420 billion or $84 billion.

We used the same approach and values to examine RPPs. According to Statistics Canada (2001a), 1999 RPP holdings can be valued at about $600 billion. Hence, they should generate a stream of personal federal income tax revenues with a present value of about 0.2 × $600 billion or $120 billion.

The total of the RSP and RPP values is, therefore, approximately $200 billion ($84 + $120 billion). Given the conventional assumption that provincial personal income tax revenues increase at a 1:2 ratio with federal personal income tax revenues, the implication is a combined federal/provincial total of about $300 billion.

We extended this simple approach to consider the federal government budget surplus. The first step was to estimate the annual increase in RRSP holdings. The Canada Customs and Revenue Agency (Canada 2000, table 2) indicates that Canadians contributed almost $26 billion to RRSPs in 1998. From this amount, we deducted the approximately $11 billion in RRSP withdrawals of various kinds for that same year,[6] and we added the return on assets in RRSPs — say, $21 billion at a five percent rate of return on holdings of about $420 billion. Hence, the increase in RRSP holdings that year was about $36 billion ($26 – $11 + $21 billion).

Given our assumptions that the rate of growth applied to these funds is precisely equal to the rate of discount and that the marginal tax rate applied to withdrawals will be 20 percent, this $36 billion increased the present value of the tax stream from future RRSP withdrawals by $36 billion × 0.2 or about $7 billion. We therefore could adjust the federal government budget balance for 1998 by adding $7 billion. Adjustments of similar size would likely apply to more recent years.

To make a similar adjustment including RPPs in the calculations, we used figures from Statistics Canada (2001c) and obtained an 1999 RRSP and RPP saving together of about $45 billion.[7] Payments from RRSPs and RPPs in that year totalled about $40 billion. An estimate of the yield on holdings is $50 billion, or about five percent of the total of 1999 RRSP and RPP holdings of $420 billion plus $600 billion. So the increase in RRSP and RPP holdings that year was about $55 billion ($45 – $40 + $50 billion). Using the same assumptions as above, we can adjust the annual federal government budget balance by adding $55 billion × 0.2 = $11 billion. Again, the combined federal/provincial adjustment would be about 50 percent more, or $16 billion.

Note that an increase in RPP and RRSP contributions — perhaps stimulated by a government policy change that increased the contribution incentives for Canadians at low incomes or raised the contribution limits — would reduce the conventionally defined budget balance because such contributions are tax-deductible. Policymakers might resist such an otherwise desirable change because

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Note 5 - continued

...On the other hand, we omitted surcharges and, importantly, did not include the effects of the old age security (OAS) or guaranteed income supplement (GIS) clawbacks, the latter having been emphasized by Shillington (1999).

6 From the special disaggregates cited in note 5.

7 The RPP saving amount includes both the employee and the employer contributions, the latter estimated using the Pension Adjustments(PAs).

of its budgetary effect. But that reaction seems shortsighted given that tax revenue would increase in future when these contributions were withdrawn. Our adjustment makes concrete the present value to the government of those future revenues.

Rates of Return

Although the above calculation is admittedly rough, it has the virtue of depending only on the assumption regarding the marginal tax rate on withdrawal. And given that marginal tax rates are not strongly progressive in the relevant range, it seems unlikely that we are off by more than one or two percentage points. We need no further assumptions regarding demography or economic behaviour. Moreover, we need no assumption regarding a particular rate of return. We assume only that the rate of return to RRSP and RPP holdings is the same as the government discount rate used for present value calculations (most plausibly, the government bond rate as in Robson 2001).

This assumption is a conservative one. Many people would argue that the rate of return on RRSP and RPP holdings should exceed the government bond rate. Incorporating this possibility (or the possibility that the bond rate is greater for some reason) required more modelling. We began by taking RRSP holdings by the age of their owner using Statistics Canada (2001a). These data are by age ranges, so within each age group we assigned an equal proportion to each year of age. (We tried varying this assumption at higher age levels and found the results were not sensitive.) We also calculated withdrawal proportions by year of age using data from Department of Finance (Canada 2001a, figure 2)[8] and the 1999 holdings. We assume these values are constant.

Assuming that no RRSP funds are held by Canadians under 19, we used the estimated holdings and the estimated withdrawal percentage by 19-year-olds to estimate withdrawals and assumed that the nonwithdrawn holdings would grow at the assumed rate of return. This calculation yielded an estimate of the RRSP amounts held by 20-year-olds one year hence. We then took that estimate and the estimated withdrawal percentage for 20-year-olds to estimate withdrawals of these funds and, as before, had the nonwithdrawn funds grow at the assumed rate of return. We allowed this process to continue for a total of 81 years, at which point we assumed that any remaining funds were withdrawn by surviving centenarians.

We repeated this calculation for funds held by 20-year-olds in 1999, then for 21-year-olds, 22-year-olds, up to 100-year-olds, whom we assumed had reached the highest RRSP-holding age. Finally, we calculated the taxes on withdrawals by all ages each year and discounted these tax revenues back to the present.[9]

Table 1 presents a few results from our modelling. Recall that as long as the tax rate is assumed to be constant, it does not matter what rate we assume as the basic rate of return. Any case in which the rate of return equals the rate of discount

8 We thank Galen Countryman of that department for supplying the underlying values.

9 The chief shortcoming of this approach is we make no special allowance for the tax-free bequest of RRSP holdings to spouses. This may mean that the average time to (taxable) withdrawal is somewhat greater than our model allows.

Table 1: ***Estimated Present Value of Federal Government Personal Income Tax Revenues Ensuing from RRSP Holdings, 1999***

Scenario	Rate of Return, r	Discount Rate, ρ	Present Value: assuming 20% tax rate*	Present Value: assuming tax rate varies by age
	(percent)		*($ billions)*	
$r > \rho$	5	3	121.7	116.2
$r = \rho$	5	5	84.0	80.3
$r < \rho$	5	7	62.1	59.1

* For the assumption of a constant tax rate, the choice of a 5 percent rate of return is unimportant. Any case in which the rate of return equals the discount rate yields the value of 84.0. And for reasonable rates of return, any case in which the discount rate is the rate of return ±2 percent will yield similar values to those given here.

Source: Author's calculations.

yields the same $84 billion estimate calculated above and reported in the middle row of the table. Any case in which a reasonable rate of return is two percentage points in excess of the discount rate yields a present value of about $120 billion, as in the first row, and any case in which a reasonable rate of return is two percentage points less than the discount rate yields a present value of about $60 billion as in the third row.

The final column gives estimates from cases in which we replaced the assumption of a constant tax rate by age with the 1998 average federal marginal tax rates on RRSP withdrawals as given by Department of Finance (Canada 2001a, 47, table 3). These tax rates include benefit reductions that take place within the tax system, such as the old age security (OAS) clawback, but not the effects of income-testing on the guaranteed income supplement (GIS). Using these new values makes a relatively small difference.

In this scenario, it is less easy to apply our calculation to RPPs because, at least for defined benefit pension plans, the funds are less strongly tied to an individual and hence, in principle, may never be withdrawn. Nonetheless, the assumptions here probably give an idea as to the sensitivity of our initial estimate given above for the case in which the rate of return equals the discount rate.

Conclusions

Much Canadian debate about federal public policy is framed by the context of the $550 billion federal government debt, sometimes with the value supplemented by estimates of the notional unfunded liabilities associated with the pension plan system or the health care system. To this mix, we add to the asset side a rough estimate of $200 billion as the 1999 present value of the future stream of federal personal income tax revenues attributable to RRSP and RPP accumulations as of 1999. Our estimate of the value of this asset for the federal and provincial governments combined is thus $300 billion.

We also suggest that the budget balance can be roughly adjusted to include the increase in present value to the federal government of RRSP and RPP holdings due to that year's contribution flow. Our rough estimate of the size of such an

adjustment for 1999 is over $10 billion for the federal government and more than $15 billion for both levels of government combined.[10]

We have deliberately stated our estimates in round numbers to emphasize that they are rough. But we also wish to emphasize that they require neither demographic projections nor behavioural modelling. They do require the assumptions of a constant tax rate of 20 percent on RRSP and RPP withdrawals and a rate of return on RRSP and RPP holdings equal to the government bond rate. (Most analysts probably regard the latter assumption as conservative.) If that rate of return was assumed to exceed the government bond rate, the estimates of the asset value would be larger.

We have also noted that policies that increase RRSP and RPP contributions, such as incentives for participation among Canadians with low incomes or raised contribution limits, which would mostly benefit individuals with higher incomes, might be resisted because of the loss in current tax revenues and hence the reduction in the current budget balance. But, as our adjustment makes clear, such policies would lead to an almost offsetting increase in the present value of future tax revenues.

Finally, assessing the long-term financial position of the Canadian government is a difficult and complex task. We have argued that the easiest, most transparent, and most accessible way to proceed is by developing asset and liability values that can be used to supplement the standard government debt figures. Other approaches exist, including those described in Brown (2002), Mérette (2002), Oreoupoulos and Vaillancourt (1998), OECD (2001), and King and Jackson (2001). All these papers acknowledge in some way that although the future is hard to predict, some aspects are more uncertain than others. What is particularly difficult to forecast is by how much future demographic change will increase the percentage of the population that is retired, and how much that factor will reduce future tax revenues. But what is clear is that contributions already made to RRSPs and RPPs will be withdrawn, that tax will be paid on these withdrawals, and that those future tax revenues have a present value. Such information should be incorporated in the public decisionmaking process.

10 Another possible entry on the liability side would be the future costs of the OAS and GIS system, as estimated but not translated into a present value by the Office of the Chief Actuary (Canada 2002). On the asset side, perhaps an estimate could be obtained for the present value of the future tax revenues associated with unrealized capital gains.

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